25. (amended) A computer peripheral connected to a host computer for enabling a user to provide input to a graphical simulation running on said host computer and for providing vibration feedback to said user, said vibration feedback corresponding with displayed interactions within said graphical simulation, said computer peripheral comprising:

an analog sensor responsive to manipulation by a user during operation of said computer peripheral;

a rotating-mass actuator including a shaft and an eccentric mass mounted on said shaft, said rotating-mass actuator operative to impart a rotating vector force upon said user, said rotating vector force creating a tactile sensation upon said user that is perceived by said user as one of a vibration, an impulse, and a series of impulses depending upon a speed of rotation and a number of rotations of said mass, said rotating mass actuator capable of providing all of said vibration, impulse, and series of impulses, said speed of rotation and said number of rotations being controlled by a profile of an activating signal provided to said rotating-mass actuator, said activating signal causing said tactile sensation to have a frequency that varies over the duration of said tactile sensation; and

a signal processor separate from said host computer, said signal processor connected to said analog sensor and said rotating-mass actuator, said signal processor operative to communicate with said host computer, wherein said signal processor sends information to said host computer including sensor data from said analog sensor, and wherein said signal processor controls said rotating-mass actuator to produce said tactile sensation by generating said activating signal in response to received variable data from said host computer.

26. A computer peripheral as recited in claim 25 wherein said signal processor includes a computer processor.

27. A computer peripheral as recited in claim 25 wherein said displayed interaction is the collision of two virtual objects within said graphical simulation.

28. (amended) A computer peripheral as recited in claim 25 wherein said rotating-mass actuator is a first rotating-mass actuator, and further comprising a second rotating-mass actuator, said second rotating-mass actuator controlled by said signal processor in response to data received from said host computer.

29. (amended) A computer peripheral as recited in claim 28 wherein said first rotating-mass actuator and said second rotating-mass actuator are controlled simultaneously to produce said tactile sensation felt by said user.

Please cancel claims 30 and 31 without prejudice.

32. A computer peripheral as recited in claim 25 wherein said computer simulation includes a graphical representation of a human body part, wherein the motion of said graphical representation of said human body part is updated in response to changes in data from said analog sensor.

33. A computer peripheral as recited in claim 32 wherein said human body part is a graphical representation of a human hand.

34. (amended) A computer peripheral as recited in claim 33 wherein said tactile sensation corresponds with a displayed collision between said graphical representation of said human hand and another displayed graphical object within said graphical simulation.

35. (amended) A computer peripheral as recited in claim 25 wherein said rotating-mass actuator is mounted on a compliant spring to amplify said vibration.

36. A computer peripheral as recited in claim 25 wherein said analog sensor is a potentiometer.

37. A computer peripheral as recited in claim 25 wherein said analog sensor is an optical sensor.

Please cancel claim 38 without prejudice.

39. (amended) A computer peripheral as recited in claim 25 wherein said vibration is controlled such that the magnitude of said vibration is varied during said tactile sensation.

Please cancel claim 40 without prejudice.

41. (amended) An apparatus in communication with a host computer for enabling a user to control a graphical simulation running on said host computer and for providing vibration feedback to said user, said vibration feedback corresponding with displayed interactions within said graphical simulation, said apparatus comprising:

a sensor responsive to manipulation by a user during operation of said apparatus;

a plurality of rotating-mass actuators, each actuator comprising a shaft and an eccentric mass mounted on said shaft, each of said rotating-mass actuators operative to impart a rotating vector force upon said user in response to an activating signal, said plurality of rotating vector forces together creating a vibrating tactile sensation upon said user that is non-uniform over the duration of said tactile sensation; and

a signal processor separate from said host computer, said signal processor connected to said sensor and each of said rotating-mass actuators, said signal processor operative to communicate with said host computer, wherein said signal processor is operative to send information to said host computer including sensor data, and wherein said signal processor is operative to selectively control the angular velocity of each of said rotating-mass actuators to produce said non-uniform tactile sensation in response to received data from said host computer.

42. (amended) An apparatus as recited in claim 41 wherein said signal processor includes a computer processor.

43. (amended) An apparatus as recited in claim 41 wherein said displayed interaction is the collision of two virtual objects within said graphical simulation.

Please cancel claims 44-45 without prejudice.

46. (amended) An apparatus as recited in claim 41 wherein said rotating-mass actuators are controlled in sequence, each actuator having a non-uniform amplitude profile over the duration of said tactile sensation.

47. (amended) An apparatus as recited in claim 41 wherein said tactile sensation is controlled such that said tactile sensation has a non-uniform amplitude profile over the duration of said tactile sensation.

Please cancel claim 48 without prejudice.

Please cancel claim 49 without prejudice.

Please add the following claims:

50. (new) A computer peripheral as recited in claim 25 wherein said signal processor causes said rotating-mass actuator to generate said series of impulses by repeating pulses of actuation to said actuator.

51. (new) An apparatus as recited in claim 41 wherein said rotating-mass actuators are controlled in sequence to produce complex tactile feedback sensations felt by said user, said complex tactile sensations having a varying frequency over the duration of said complex tactile sensations.

52. (new) An apparatus as recited in claim 41 wherein said rotating-mass actuators generate a series of individual impulses felt by said user.

53. (new) An apparatus as recited in claim 41 further including a joystick manipulatable by said user.

54. (new) A method of controlling a plurality of rotating mass actuators to provide tactile feedback to a user providing input to a computer simulation, said tactile feedback corresponding with displayed interactions within said computer simulation, said method comprising:

providing a plurality of rotating-mass actuators, each of said rotating-mass actuators under electronic control, each of said rotating-mass actuators comprising a shaft and an eccentric mass mounted on said shaft, each of said rotating-mass actuators imparting a rotating vector force upon said user in response to an activating signal and in coordination with said computer simulation; and

enabling control of said plurality of rotating-mass actuators to create in combination a vibration upon said user with an amplitude that is non-uniform over a duration of said vibration.

55. (new) A method of controlling a plurality of rotating mass actuators to provide tactile feedback to a user providing input to a computer simulation, said tactile feedback corresponding with displayed interactions within said computer simulation, said method comprising:

providing a plurality of rotating-mass actuators, each of said rotating-mass actuators under electronic control, each of said rotating-mass actuators comprising a shaft and an eccentric mass mounted on said shaft, each of said rotating-mass actuators imparting a rotating vector force upon said user in response to an activating signal and in coordination with said computer simulation; and

enabling activation of said plurality of rotating-mass actuators, each of said rotating-mass actuators rotating with a different frequency profile such that a tactile sensation caused by said actuators is created upon said user with a varying frequency over a duration of said tactile sensation.

56. (new) A method as recited in claim 55 wherein said plurality of actuators are activated in sequence.

57. (new) A method of controlling a plurality of rotating mass actuators to provide tactile feedback to a user providing input to a computer simulation, said tactile feedback corresponding with displayed interactions within said computer simulation, said method comprising:

providing a plurality of rotating-mass actuators, each of said rotating-mass actuators under electronic control, each of said rotating-mass actuators comprising a shaft and an eccentric mass mounted on said shaft, each of said rotating-mass actuators imparting a vibration upon said user in response to an activating signal and in coordination with said computer simulation; and

enabling activations of said plurality of rotating mass actuators, each of said activations having an amplitude profile different from said other activations to create a tactile sensation upon the user that has a non-uniform amplitude over a duration of said tactile sensation.

58. (new) A method as recited in claim 57 wherein said activations of said rotating mass actuators are sequenced.